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APPARATUS AND METHOD FOR REINFORCING MAPS FOR FIELD USE

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It is believed that the information that follows will be of interest to those who require permanent maps that will survive the rigors and abuse of continual field use. The apparatus and procedure herein described have been developed from ideas contributed by various members of the parasite section of the Japanese Beetle Laboratory and several years of experience in their application. If due care is used in the work, maps thus prepared are firm, free from wrinkles, and well protected against wear.

Apparatus

The apparatus itself is comparatively simple. A pasting flat (fig. 1) is made by screwing a piece of 1/8-inch Presdwood, measuring $20\frac{3}{8}$ by $16\frac{5}{8}$ inches, to three cleats of white pine, $16\frac{5}{8}$ inches long and $1\frac{1}{8}$ inches thick (fig. 1). The screw heads should be flush with the surface of the flat.

A rectangular map frame (fig. 2), measuring $20\frac{1}{2}$ by $16\frac{3}{4}$ inches inside measurement, is made of pine stock $1\frac{1}{4}$ inches square. The frame will then just fit over the pasting flat (fig. 3). On a line $\frac{3}{8}$ inch from the inside edge of the map frame, finish nails are driven through the wood to protrude about 1 inch on the other side. The nails should be $\frac{5}{8}$ inch apart. To prevent the frame from splitting, it is well to put a series of flat-headed screws into it from the inside surface. These may also be tightened from time to time if the nails work loose from use (fig. 2).

Procedure

To prepare the reinforcing cloth, cut pieces of muslin 2 inches wider and 2 inches longer than the inside measurements of the map frame. Boil these pieces to take out the sizing and shrink the cloth, then dry them. Stretch the cloth over the map frame by impaling the edges on the nails, taking care to get it as tight as possible and entirely free from any tendency to wrinkle. Next, invert the cloth-covered map frame and fit it over the pasting

flat, with the nails pointing down and the cloth resting on the surface of the pasting flat. After being brushed clean, the cloth is ready for the application of the paste.

The paste is applied with a $1\frac{3}{4}$ -inch paint brush and is spread evenly until the muslin is thoroughly wetted through and the paste worked into the cloth. The map is now laid in the map frame, back to the cloth, and smoothed flat with the hands. Allow it to remain for 2 to 3 minutes until the paper has taken up moisture from the paste-saturated cloth, when wrinkles in the paper will be noticed. Now part the map from the cloth to free the wrinkles. Any wrinkles remaining after the map has again been placed on the cloth can be effectively removed by smoothing its surface with a wad of soft cloth, using moderate pressure against the supporting pasting flat. This also serves to assure uniform adherence of the map to the cloth.

The map frame is now lifted from the pasting flat and placed in an open oven with slow heat until the cloth and paper are thoroughly dry. Care should be taken, however, to remove the frame from the oven immediately after they are thoroughly dry. The cloth-backed map is removed from the frame by running a sharp knife around its inside edge. The map edges may now be trimmed as desired.

Folding Maps

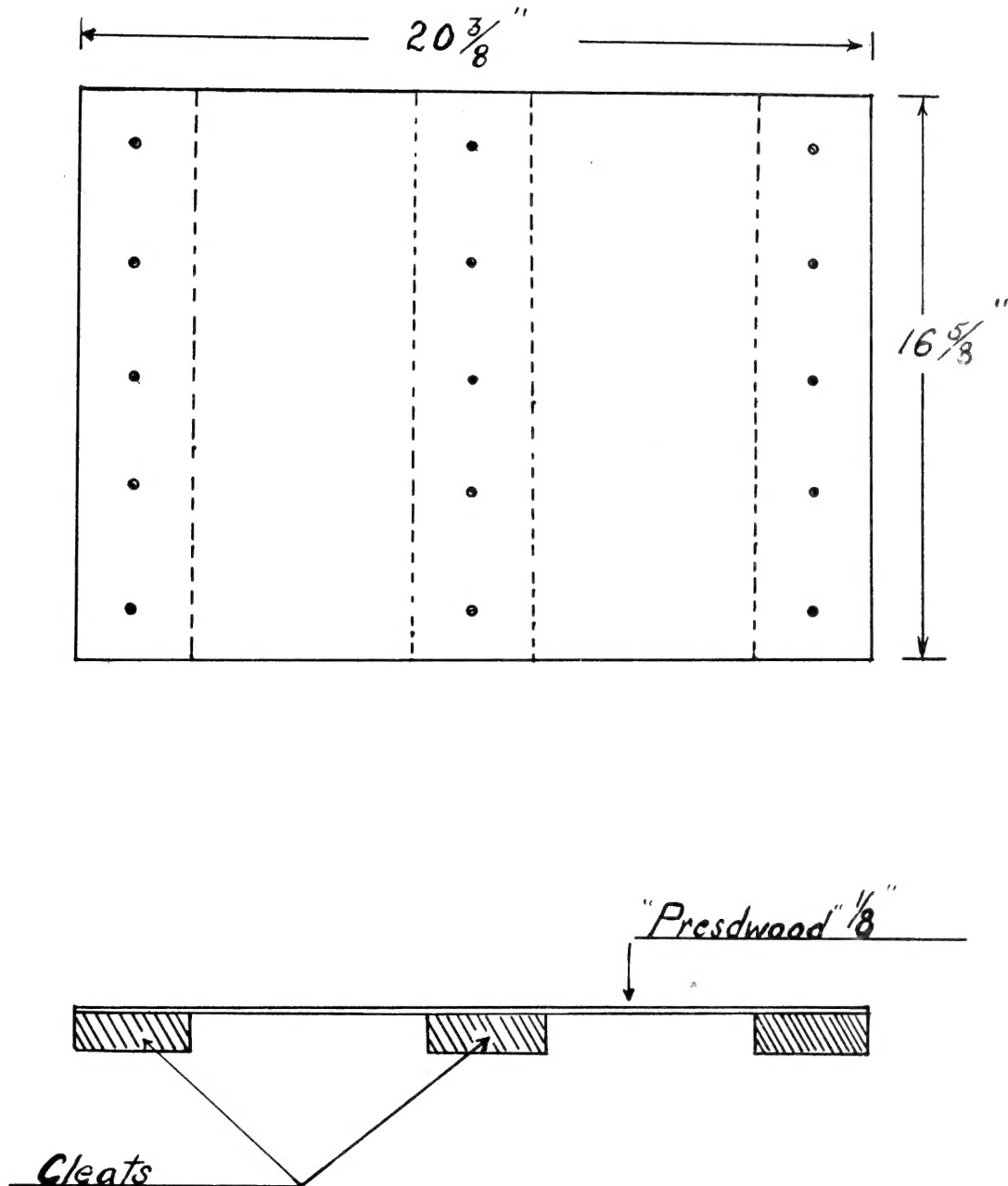
If folding maps are desired, they can be made in the same general manner. The paper map is first cut into the desired sections, and these are mounted as described above, but separated from one another by $1/8$ inch to permit folding of the cloth. To further protect maps for field use, an effective cover may be made by pasting a sheet of two-ply or three-ply pressboard to the back of each of the sections forming the two outside folds (fig. 4).

Paste

The best paste for this use is map paste, generally obtainable from map dealers. After mixing 3 parts of water and 1 part of paste, stir the mixture thoroughly and strain it through a 16-mesh screen.

Note.—The size of the frame and the pasting flat to be used would vary from the dimensions given in the foregoing description according to the size of the map to be mounted. The frame and flat should be slightly larger than the map.

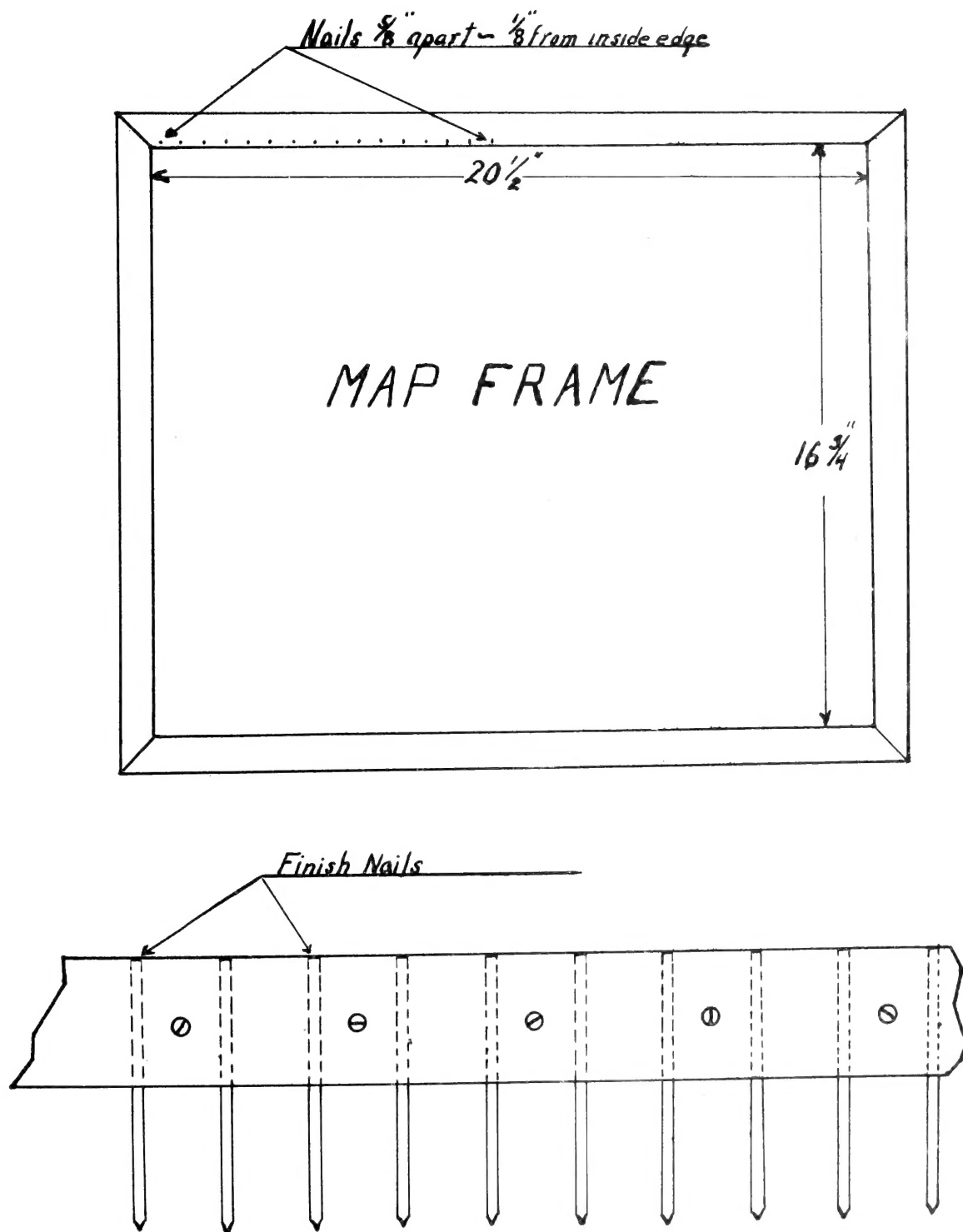
Fig. 1



PASTING FLAT

Figure 1.--Details of the construction of the pasting flat.

Fig. 2



Section of Inside Surface of Map Frame

Figure 2.--Details of the construction of the map frame.

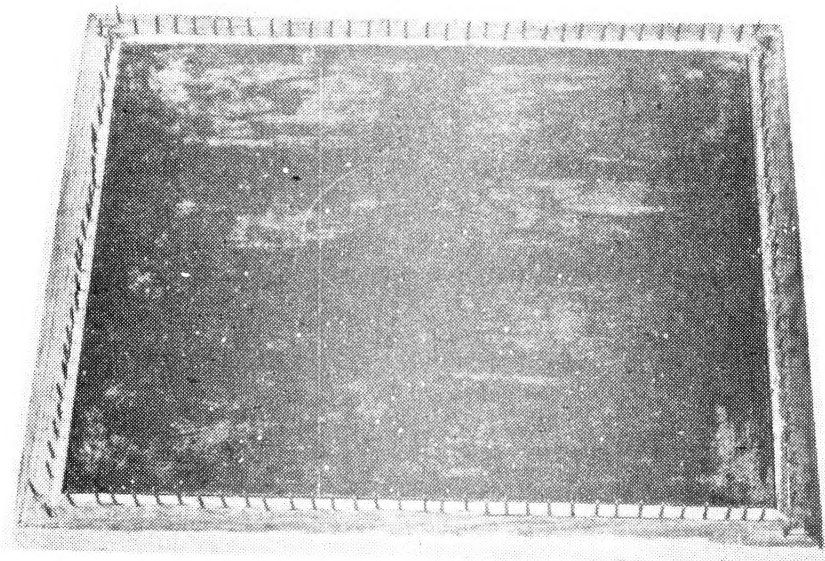


Figure 3.—Pasting flat fitted inside the map frame.
Note: After the cloth has been stretched over the frame the position of the latter is reversed before the paste is applied.

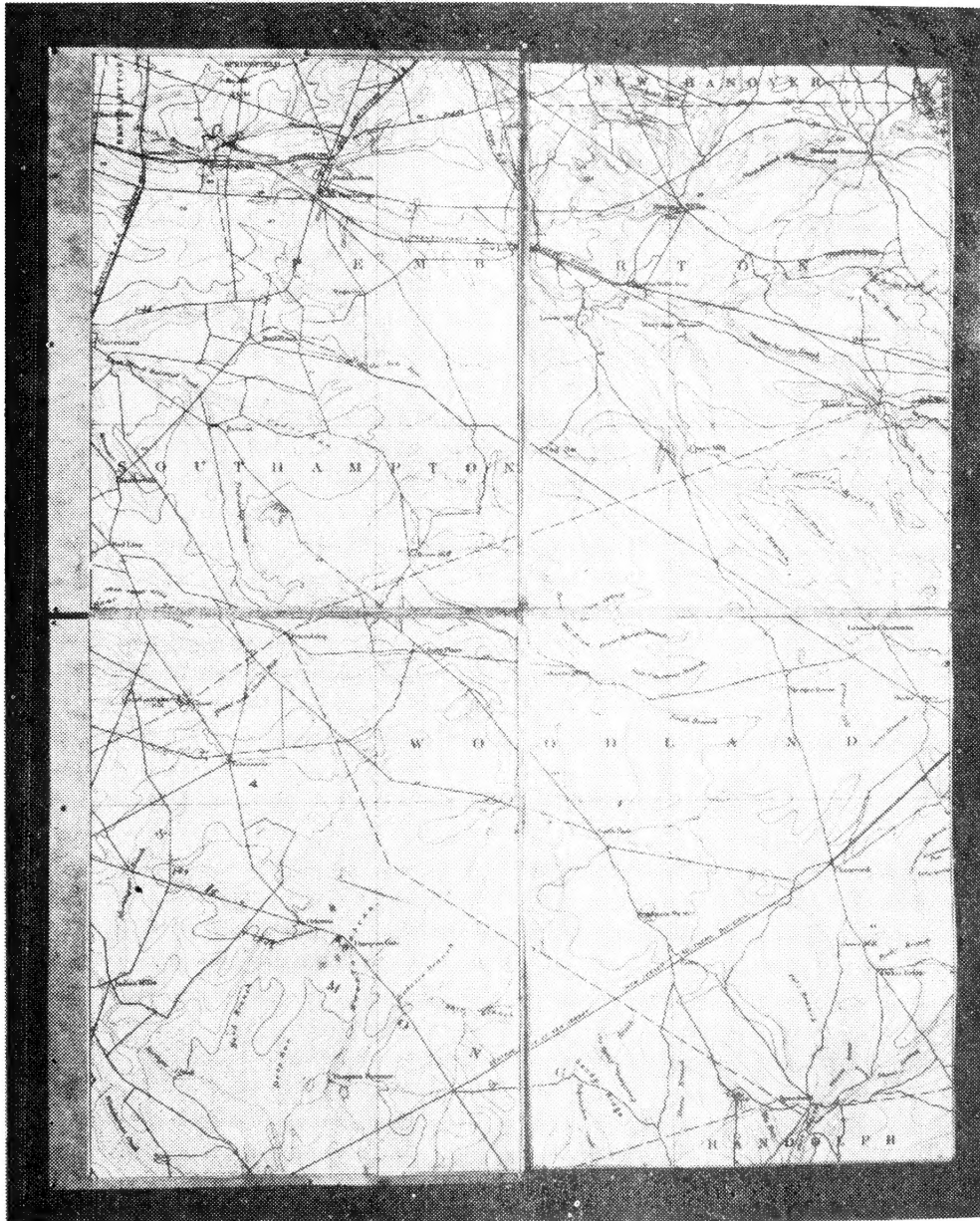


Figure 4.—Face of reinforced folding map showing method of mounting the sections. Notice the protruding edge of the pressboard cover along the left margin to protect the edges of the folded map.

